

(51) Int. Cl.<sup>6</sup>  
C09J 7/02

Class. Symbols

FI  
C09J 7/02

Z

Request for Examination: Not yet submitted

Number of Claims: 4

Total of 3 pages [in original]

(21) Application No.: 9-219822

(22) Date of Filing: August 1, 1997

(71) Applicant: 597116230

Ito, Shoji

1-957 Banchi, Oaza Ukizuka, Yashio-shi, Saitama-ken

(71) Applicant: Itou, Shoji

1-957 Banchi, Oaza Ukizuka, Yashio-shi, Saitama-ken

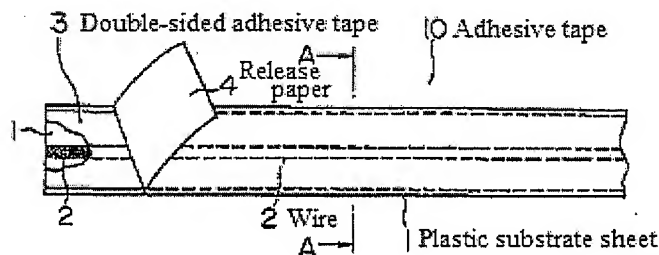
(74) Agent: Ishii Takashi, Patent Attorney

(54) [Title of the Invention] Adhesive Tape Provided with Metal Wire

(57) [Summary]

[Object] An adhesive plastic tape endowed with specific strength, foldability/bendability, and tension properties.

[Means of Achievement] An adhesive tape wherein a metal wire or flat sheet is welded by heat or joined to a sheet that serves as a substrate, a double-sided adhesive tape is placed thereon as a layer, and a release tape is superposed and integrated on the top surface.



[Claims]

[Claim 1] An adhesive tape provided with a metal wire, characterized by being integrally molded from a plastic tape that serves as substrate, a metal wire attached to one side of the plastic tape in the lengthwise direction, a double-sided adhesive tape superposed and bonded on

the upper surface of the plastic tape and the metal wire, and a release tape adhesively joined to the double-sided adhesive tape.

**[Claim 2]** An adhesive tape provided with a metal wire, characterized in that the metal wire attached to one side of the plastic tape that serves as a substrate according to claim 1 is welded by heat and included into the plastic tape.

**[Claim 3]** An adhesive tape provided with a metal wire, characterized in that the metal plate according to claims 1 and 2 is a flat metal plate obtained by forming both lateral edges into an arcuate shape.

**[Claim 4]** An adhesive tape provided with a metal wire, characterized in that the plastic tape that serves as a substrate according to claims 1 to 3 is configured from foamable plastic.

#### **[Detailed Description of the Invention]**

**[0001]**

**[Technological Field of the Invention]** The present invention relates to a product in which an adhesive tape is used.

**[0002]**

**[Prior Art]** Adhesive tapes and sheets are used as adhesive-containing products for bundling or binding, and products obtained by applying an adhesive to a plastic film or sheet that serves as a substrate are generally commercially available. A plastic film or sheet coated with an adhesive is a flexible material fixedly and adhesively attached to an attachment object. There are, however, cases in which the attachment portion must be bendable and have tension and shaping properties. When, for example, a student travels to and from school by bicycle on a rainy day, the head portion of raingear in the form of a hood is worn so as to expose the face, but the edges of the visor would hang down in front of the face, making it hard to see ahead, and occasionally making it dangerous to ride the bicycle. In such cases, maintaining the visor shape of the headgear with an adhesive tape that provides adequate bending strength, shape adaptability, and tension to the edges at the tip of the visor will make it possible to attach the tape as a shape-adjusting and reinforcing material to the edge portions of the visor. Such a bendable and shape-adjustable plastic tape is not yet currently available on a commercial scale.

[0003]

**[Problems to Be Solved by the Invention]** An object of the present invention is to solve the aforementioned problem by combining a metal object with a plastic tape configuration in which an adhesive tape is provided with bendability and specific tension and shaping properties.

[0004]

**[Means Used to Solve the Above-Mentioned Problems]** The present invention is a means of attaining the object described above and relates to an adhesive tape provided with a plastic tape that serves as a substrate, a metal wire welded by heat or attached to one side of the plastic tape in the lengthwise direction, a double-sided adhesive tape bonded on the upper surface of the plastic tape and the metal wire, and a release tape superposed on the double-sided adhesive tape. The invention also relates to a structure in which a metal wire is bonded by heat or attached to a plastic film or sheet that serves as a substrate, and the metal wire is configured into a linear element or a thin flat metal plate in which both lateral edges are formed into an arcuate shape.

[0005]

**[Embodiments of the Invention]** Examples of the present invention will now be described in detail. Fig. 1 is a plan view (bird's-eye view) showing the tape of the invention, Fig. 2 is a side view of Fig. 1, and Fig. 3 is an enlarged sectional view along line A-A in Fig. 1. In the drawings, 10 is the adhesive tape of the invention, and 1 is the plastic sheet or film that serves as a substrate and is made of a material having excellent mechanical strength, moisture proofness, and tensile strength, and is generally a sheet or film that is molded from vinyl resin, is provided with excellent insulation properties and waterproofness and minimal degradation, and can be used inexpensively. 2 is a metal wire which is bonded by heat to the vinyl resin sheet. Steel, stainless steel, alloys, and other high-strength materials can be used, but metal materials that are bendable and have a shape that can be adjusted by machining are preferable. The wire is attached to the plastic sheet that serves as a substrate, or is heated and welded by heat to the plastic sheet that serves as a substrate. 3 is a two-sided tape fixedly bonded to the upper surface of the wire that is welded by heat or attached to the plastic sheet. The wire section forms a convex protrusion 6. 4 is a plastic or paper release tape bonded to the two-sided tape.

[0006] Fig. 4 is a second example of an adhesive tape in which a thin flat plate 5 is formed so that it is half to one-fourth the diameter of a wire obtained by crimping a metal wire, and edges 5a on both ends are worked into an arcuate shape to prevent the tape or the fingers of the operator from being damaged by the edges on the two sides of the flat plate during bending. The flat sheet also has a large adhesive surface in relation to the substrate tape, the protrusion 6 of the adhesive tape in the attached portion is reduced to about half to one-fourth of the wire, and the outward appearance and the adhesion of the tape to the metal element are also enhanced.

[0007] The plastic tape that serves as a substrate for the adhesive may also be foamable plastic that has cushioning properties and heat insulating properties. With the substrate tape obtained using propylene foam, polyethylene foam, or expanded polyvinyl chloride resin as a foam material, the product can be used as an adhesive tape for packaging or wrapping materials.

[0008]

**[Operation of the Invention]** The strength properties of the tape and the tension properties and shape-adjusting and reinforcing action of the bent tape can be enhanced by the use of a metal wire or a flattened thin plate in the adhesive tape of the present invention. Expansion and contraction of the adhesive tape due to temperature variations can be reduced by integrating the adhesive tape with a wire or a linear metal element composed of a flat plate. The metal wire or thin flat plate is fixedly welded by heat or attached to the plastic substrate sheet to form a cover and is joined by a double-sided adhesive tape to provide anticorrosive action because the surface is not exposed even when the release paper is peeled off.

[0009]

**[Effect of the Invention]** The present invention has the technical features of the structural arrangement described above, for which reason the undesirable slipperiness possessed by the conventional tape alone is overcome to provide an adhesive tape that can be held more steadily in place and to provide a material having enhanced strength. Therefore, inclusion of a metal wire is effective in increasing the strength of bundling and in preventing the tape from tearing, breaking, and otherwise degrading during twisting when the release tape is peeled off and the adhesive tape of the present invention is used for binding transported goods, freight, and the like or bundling and holding such articles together. In addition, the tape is extremely effective in enhancing the tension and shape reinforcement of synthetic resins, fibers, and other flexible

materials along the rims, and has great utility as an adherent for vinyl hothouses or outdoor structures as well as for attachment to the rims of soft hoods in warm clothing and raingear, and in rain-proofing kits for edges and ends, in other household application, and as general utility tape. Products in which the substrate sheet is a foam material, the metal wire is effective in reducing the stretching of the foam substrate sheet and preventing bundles from loosening.

**[Brief Description of the Drawings]**

**[Figure 1]** A partial plan view of an adhesive tape according to the present invention.

**[Figure 2]** An enlarged side view of a metal wire welded by heat to the substrate sheet in Fig. 1.

**[Figure 3]** An enlarged sectional view along line A-A in Fig. 1.

**[Figure 4]** A cross-sectional view of a second example of Fig. 1.

**[Key]**

- 1: Plastic substrate sheet
- 2: Wire
- 3: Double-sided adhesive tape
- 4: Release tape
- 5: Metal plate
- 6: Protrusion
- 10: Adhesive tape

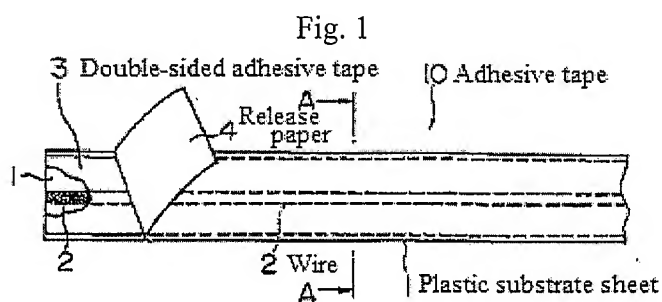


Fig. 2

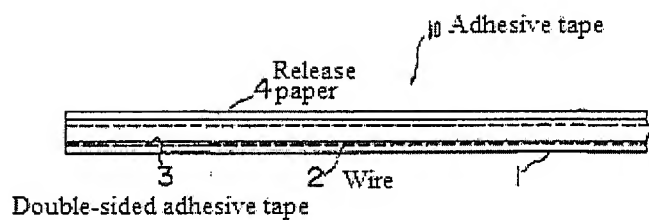


Fig. 3

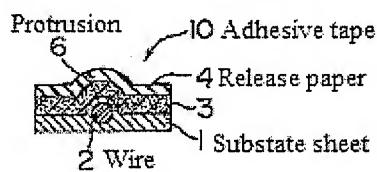
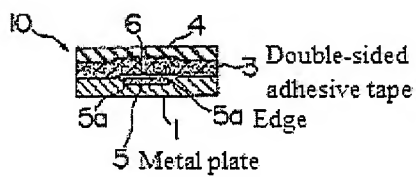


Fig. 4



(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開平11-50023

(43) 公開日 平成11年(1999) 2月23日

(51) IntCl.<sup>6</sup>  
C 0 9 J 7/02

識別記号

F I  
C 0 9 J 7/02

Z

審査請求 未請求 請求項の数4 FD (全 3 頁)

(21) 出願番号 特願平9-219822

(22) 出願日 平成9年(1997) 8月1日

(71) 出願人 597116230

伊藤 捷司

埼玉県八潮市大字浮塚957番地の1

(72) 発明者 伊藤 捷司

埼玉県八潮市大字浮塚957番地の1

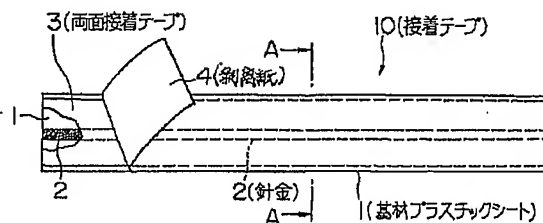
(74) 代理人 弁理士 石井 孝

(54) 【発明の名称】 金属線を包摂した接着テープ。

(57) 【要約】

【課題】 プラスチック製接着テープの可撓性に一定の強度性と、折曲げ屈曲性と、張力性のある接着テープ。

【解決手段】 基材シートに針金、又は平板の金属を接着、又は熱溶着しこれに両面接着テープを被層し、上面に剥離テープを積層して一体とした接着テープとする。



## 【特許請求の範囲】

【請求項1】 基材となるプラスチックテープと、そのプラスチックテープの長さ方向片面に取着的金属線と、前記プラスチックテープ及び金属線上面に積層接着した両面接着テープと、前記両面接着テープに被着した剥離テープとを一体に成形してなることを特徴とする金属線を包摂した接着テープ。

【請求項2】 請求項1記載の基材となるプラスチックテープの長さ方向片面に取着的金属線をプラスチックテープに包摂的に熱溶着することを特徴とする金属線を包摂した接着テープ。

【請求項3】 請求項1、請求項2記載の金属線を、両側縁を円弧状に形成した金属平板としたことを特徴とする金属線を包摂した接着テープ。

【請求項4】 請求項1～請求項3記載の基材となるプラスチックテープを発泡性プラスチックで構成したことを特徴とする金属線を包摂した接着テープ。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】本発明は接着テープの応用製品に関するものである。

## 【0002】

【従来の技術】接着テープ、接着シートは結束、もしくは結着用の接着剤応用製品として利用されているが、基材としてプラスチックフィルム、もしくはシートに粘着剤を塗布したものが一般に市販され利用されている。粘着剤を塗布したプラスチックフィルム、又はシートは可撓性の材質であり被取付材に密着自在に固着状に被着される。しかし被取付部分が屈曲自在、かつ張力整形性を必要とする場合、例えば学生の自転車通学において雨天の場合に合羽として着用する雨具の帽子部分は顔が露出するように被帽するが、庇部分の縁辺が顔の前面に垂れ下がって前面が見えにくく自転車の運転が危険な場合がある。このような場合庇の先端縁が適当な屈曲強度と整形性、張力性のある接着テープによって帽子の庇形状が定形的に保持できれば整形補強材として庇のエッジ部分に取付けることができる。現在このような屈曲性と整形保持性を備えたプラスチックテープは市販されていない。

## 【0003】

【本発明の解決すべき課題】本発明は接着テープにおいて、一定の張力整形性と強質、かつ屈曲性を備えたプラスチックテープの構成を金属体との組み合わせによる解決を課題とした。

## 【0004】

【課題を解決するための手段】上述の目的を達する手段として基材となるプラスチック製テープと、そのプラスチックテープの長さ方向片面に取着的、もしくは熱溶着した金属線と、前記プラスチックテープ及び金属線上面に接着した両面接着テープと、その両面接着テープ上面

に被層した剥離テープを積層してなる金属線、もしくは金属平板を包摂した接着テープに係るもので、金属線は基材のプラスチックフィルム、もしくはシートに取着的、もしくは熱溶着し、金属線は線体、もしくは両側縁を円弧に形成した肉薄平板とした構成に係るものである。

## 【0005】

## 【発明の実施の形態】

【実施例】以下本発明の実施例について具体的に詳説する。図1は本発明テープを示す正面（俯瞰）図で、図2は図1の側面図、図3は図1のA-A線拡大断面図である。図面において10は本発明接着テープで、1は材質として機械的強さ、防湿性、引っ張り強さにすぐれている基材となるプラスチックフィルム、又はプラスチックシートで一般的にはビニール樹脂で成形したシート、又はフィルムが絶縁性、耐水性に富み劣化性が少なく安価に利用できる。2はビニール樹脂シートに熱接着した金属の針金である。スチール、又はステンレス、合金等の強質であるが屈曲性、かつ工作整形性のある金属材料がよい。針金は基材のプラスチックシートに取着的、又は加熱し基材のプラスチックシートに熱溶着する。3はプラスチックシートに取着的、もしくは熱溶着した針金の上面に固定状に粘着した両面粘着テープである。針金部分は凸状に膨出6する。4は両面粘着テープに貼着したプラスチック、もしくは紙製の剥離テープである。

【0006】図4は接着テープの第2実施例で、金属線を圧着加工した針金の径の2分の1～4分の1の肉薄の平板5とし、かつ両端縁5aを円弧状に加工し、屈曲した際平板の両側端縁でテープや作業員の手指の損傷を防止する。又平板は基材テープに対する接着面が大きくなり、かつ取付部分の接着テープの膨出部6は針金に比し2分の1～4分の1程度に抑えられ外観性と金属体のテープ密着性を昂める。

【0007】接着テープの基材であるプラスチックテープはクッション性、断熱性のある発泡性のプラスチックでもよい。発泡材としては、発泡ポリプロピレン、発泡ポリエチレン、発泡塩化ビニール樹脂を材質とした基材テープによりパッキング材料、包装材料の粘着テープとして利用する。

## 【0008】

【作用】本発明接着テープの作用としては、針金、もしくは圧潰した肉薄平板の使用によってテープの強質性と屈曲した際の張力性と整形補強作用が昂められる。又接着テープに線、もしくは平板よりなる金属線体を一体に取着的することにより接着テープの温度変化による伸縮作用を抑止する。針金、肉薄平板は基材のプラスチックシートに固定状に取着的、又は熱溶着して被覆されて、かつ両面接着テープで被着されて剥離紙の剥離によっても表面に露出しないので防錆作用がある。

## 【0009】

【効果】本発明は上述の構造作用の技術的特長を備えて



3

4

いるので、従来のテープのみによるすべり易い結果の難点が解消され接着テープの固定性と共に材質の強度性が昂まるので、商品、貨物等の移送や結束保持の際剥離テープを剥離し、本発明接着テープを利用した結着をすれば金属線体の包摂によって結束の強化や、ねじれた場合もテープの亀裂、切断等の劣化防止に有効である。又上述したように合成樹脂や繊維等の可撓材質周縁の張力性と整形補強に極めて有効で防寒衣、雨衣のやわらかい帽子の縁に取付け、あるいはビニール製の温室や野外工作物に対する被着体として風除、雨除の端縁取付用具、その他家庭用、一般工作用テープとして利用性は大きい。又発泡材を基材シートとした場合は金属線体が発泡材基材シートの伸長性を抑止し、結束の緩み防止に有効である。

## 【図面の簡単な説明】

【図1】本発明接着テープの一部正面図である。

【図2】図1の基材シートに金属線を熱溶着した場合の拡大側面図である。

【図3】図1のA-A線拡大断面図である。

【図4】図1の第2実施例断面図である。

## 【符号の説明】

1 基材のプラスチックシート

2 針金

3 両面接着テープ

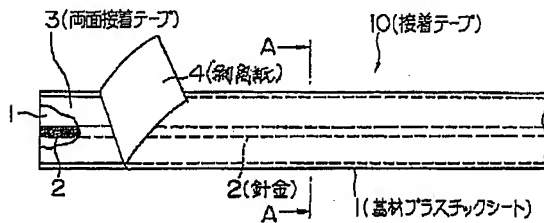
4 剥離テープ

5 金属平板

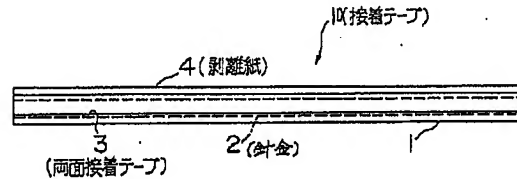
6 膨出部

10 接着テープ

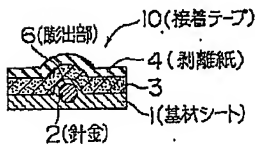
【図1】



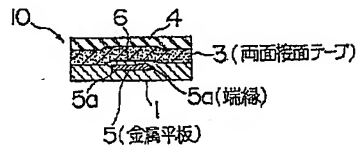
【図2】



【図3】



【図4】



**DERWENT-ACC-NO: 1999-211037**

**DERWENT-WEEK: 199918**

***COPYRIGHT 2009 DERWENT INFORMATION LTD***

**TITLE:** Adhesive tape for goods, cargo  
and rain clothes has double-sided  
adhesive strip laminated to plastic  
sheet fixed with metal wire on one  
side and peeling tape on other  
side

**INVENTOR: ITO S**

**PATENT-ASSIGNEE: ITO K[ITOKI]**

**PRIORITY-DATA: 1997JP-219822 (August 1, 1997)**

**PATENT-FAMILY:**

<b>PUB-NO</b>	<b>PUB-DATE</b>	<b>LANGUAGE</b>
<b>JP 11050023 A</b>	<b>February 23, 1999</b>	<b>JA</b>

**APPLICATION-DATA:**

<b>PUB-NO</b>	<b>APPL- DESCRIPTOR</b>	<b>APPL-NO</b>	<b>APPL- DATE</b>
<b>JP 11050023A</b>	<b>N/A</b>	<b>1997JP- 219822</b>	<b>August 1, 1997</b>

**INT-CL-CURRENT:**

<b>TYPE</b>	<b>IPC DATE</b>
<b>CIPP</b>	<b>C09J7/02 20060101</b>

**ABSTRACTED-PUB-NO: JP 11050023 A**

**BASIC-ABSTRACT:**

**NOVELTY** - The adhesive tape consists of a double-sided adhesive strip (3), laminated to a base plastic sheet (1) fixed with a metal wire (2) along its entire length. The other side of the adhesive strip is adhered to a peeling tape (4).

**USE** - For goods, cargo, rain clothes.

**ADVANTAGE** - The adhesive tape has high tensile strength and flexibility. Hence a superior quality adhesive tape is obtained. Since the material surface is not exposed it prevents rusting of material.

**CHOSEN-DRAWING:** Dwg.1/4

**TITLE-TERMS:** ADHESIVE TAPE GOODS CARGO  
RAIN CLOTHING DOUBLE SIDE  
STRIP LAMINATE PLASTIC SHEET  
FIX METAL WIRE ONE PEEL

**DERWENT-CLASS:** A81 G03

**CPI-CODES:** A12-A01; G03-B04;



**ENHANCED-POLYMER-  
INDEXING:**

**Polymer Index [1.1]  
018 ; P0000; S9999  
S1581; S9999 S1309\*R;**

**Polymer Index [1.2]  
018 ; ND01; K9416;  
Q9999 Q6633; N9999  
N7192 N7023; Q9999  
Q7818\*R; K9574  
K9483; K9676\*R;  
K9712 K9676; Q9999  
Q7056\*R; Q9999  
Q8366\*R; Q9999 Q9303  
Q9212; Q9999 Q7090  
Q7056;**

**Polymer Index [1.3]  
018 ; D00; Gm; A999  
A419; S9999 S1070\*R;**

**Polymer Index [2.1]  
018 ; P0000; S9999  
S1649\*R;**

**Polymer Index [2.2]  
018 ; ND01; K9416;  
Q9999 Q6633; N9999  
N7192 N7023; Q9999  
Q7818\*R; K9574  
K9483; K9676\*R;  
K9712 K9676; Q9999  
Q7056\*R; Q9999  
Q8366\*R; Q9999 Q9303  
Q9212; Q9999 Q7090  
Q7056;**

**SECONDARY-ACC-NO:**

**CPI Secondary Accession Numbers: 1999-062154**